International Civil Aviation Organization

WORKING PAPER

A40-WP/272[1]
TE/112
2/8/19

ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other Issues to be considered by the Technical Commission

ATM SOLUTIONS FOR HELICOPTERS

(Presented by the International Coordinating Council of Aerospace Industries Associations (ICCAIA), the International Business Aviation Council (IBAC) and the International Federation of Airline Pilots Associations (IFALPA))

EXECUTIVE SUMMARY

Helicopters operations are an integral and growing segment of today's worldwide air transport system. Helicopters provide needed air transport and provide essential air services in times of need. However, there are existing constraints that can limit helicopter operations and do not make use of their current technologies. There are practices available in some ICAO regions that should be shared globally. In addition, new and amended ICAO provisions are needed for helicopters to meet their full potential in the global air transport system, as well as this transport mode's contribution to the United Nations (UN) Sustainable Development Goals (SDGs).

Action: The Assembly is invited to:

a) request ICAO to prioritize work related to helicopter operations for helicopters to meet their full global potential to contribute to sustainable development and provide a critical link for humanitarian relief following nature disasters;
b) request ICAO to promote the sharing of best practices in respect of helicopter operations through the planning and implementation regional groups (PIRGs); and
c) request ICAO to consider the demand for new provisions that would support the advancement of helicopter operations.

Strategic Objectives:	This working paper relates to the Safety, Air Navigation Capacity and Efficiency and Air Transport development Strategic Objectives.
Financial implications:	The activities referred to in this paper will be subject to the resources available in the 2020-2022 Regular Programme Budget and/or from extra budgetary contributions.
References:	Doc 10115, *Report of the Thirteenth Air Navigation Conference (AN-Conf/13)*, Corrigenda Nos. 1 and 2, and Supplement No. 1. Doc 10075, *Assembly Resolutions in Force (as of 6 October 2016)*

[1] English, Arabic, Chinese, French, Russian and Spanish versions provided by ICCAIA.

1. INTRODUCTION

1.1 Helicopters operations are an integral and growing segment of today's worldwide air transport systems today. Helicopters provide needed air transport and essential air services in times of need. For example, following natural disasters, helicopters are often the critical link that provide much needed search and rescue capabilities and humanitarian relief. Throughout the world, helicopters are the backbone of United Nations humanitarian relief work and peace keeping operations. However, operations inside controlled airspace and terminal manoeuvring areas (TMA) are often limited to visual flight rules (VFR) flights. Flights under instrument flight rules (IFR) are often constrained or even prohibited. Helicopter technology has advanced significantly over the past few decades. Nevertheless, operations are confined to flying only when meeting strict visibility standards drastically limiting their access in controlled airspace and to many suitable landing locations. Given the existing constraints, helicopter operations are unable to meet their full potential in the global air transport system and to meet their potential to contribute to the UN SDGs.

2. DISCUSSION

2.1 Regional solutions have been advanced to utilize the on board technologies available in modern helicopters today. For example, the Single European Sky ATM Research (SESAR) programme has made progress in facilitating helicopter operations based on ICAO guidance and Standards (e.g., ICAO *Global Air Navigation Plan* (GANP, Doc 9750), *Performance-based Navigation (PBN) Manual* (Doc 9613), *Procedures for Air Navigation Services — Aircraft Operations* (PANS-OPS, Doc 8168), etc.). One of the SESAR solutions is "optimized low-level IFR for rotorcraft" and is based on required navigation performance (RNP to enable an optimized use of the airspace by flying on the latest generation of IFR helicopters). It consists of a series of innovative IFR low-level routes based on global navigation satellite system (GNSS) and satellite-based augmentation system (SBAS) technology.

2.2 The integration of optimized rotorcraft low-level IFR infrastructures can enhance flight safety, weather resilience and can improve the operational efficiency through reduced track mileage resulting in less fuel consumption and associated CO_2 emission. Benefits for the environment may also be expected as a result of fewer VFR flights at very low altitude and avoidance of noise sensitive areas by using narrow and/or curved low-level procedures. These low-level IFR routes can be directly linked to dedicated point-in-space (PinS) arrival and departure procedures, where published, enabling simultaneous non-interfering (SNI) operations at airports that are procedurally segregated from conventional fixed-wing operations. However, developments in an ICAO region need to be shared across ICAO regions to realize their benefits globally. ICAO could promote the sharing of best practices through its regular work with the PIRGs.

2.3 ICAO Annex 6 — *Operation of Aircraft*, Part III — *International Operations — Helicopters*, was developed in the late 1980s and adopted by the Council of ICAO in March of 1990. Subsequent revisions to Annex 6, Part III have been made primarily based upon developments in airplanes or overarching concepts such as safety management systems. There is a need to revisit several ICAO provisions including Annex 6, Part III, as well as PANS and guidance for helicopters to meet their full potential in the global air transport systems. For example, there is a need for development and improvement of the PinS concept and low-level IFR routes concepts in PANS-OPS and the PBN Manual. Emerging technological developments and helicopter capabilities should also be considered in the ICAO documents. Several original equipment manufacturers (OEMs) are developing new and advanced navigation capabilities for low visibility operations including on board integration of synthetic, enhance and combined vision technologies. The capabilities of these new systems will require enabling ICAO provisions to promote global implementation.

2.4 There is also a need to update Annex 14 — *Aerodromes*, Volume II — *Heliports*, regarding IFR heliport design requirements. The existing requirements are linked to legacy IFR technology and do not permit the full use of advanced helicopters that are highly manoeuvrable and utilize on board technologies and automation that would allow operations to Category I and lower visibility minima.

3. CONCLUSIONS

3.1 While helicopter operations are an integral and growing segment of today's global air transport system, they are often constrained by existing approaches to integrating their operations in the airspace system. As a result, helicopter operations are unable to meet their full potential in the global air transport system and to meet their potential to contribute to the UN SDGs. Regional developments have the possibility to address some of these constraints and should be shared globally through existing ICAO mechanisms. Additional development work will be needed to accommodate helicopter operations, and other emerging forms of air transport, into low-level airspace.

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